RETAINER FOR IMMOBILIZING A BUCKET DURING MIXING

BACKGROUND OF THE INVENTION

[0001] This invention relates to a retainer which holds a large bucket or can containing liquid or other relatively viscous liquid materials, against rotational or other movement during the time that the liquid contents are mixed and, also, against tipping and spilling the contents. During the commercial procedures for applying paint or drywall "mud" or other coating or sealing materials, such as grout, stucco, mortar, wallpaper paste, cement and the like relatively viscous liquid materials, the person applying such materials typically obtains the materials in a conventional five-gallon or similarly sized container. Then the contents are mixed just before applying the liquid upon the desired surface. Such mixing may be performed manually with a stick-type stirrer of some sort. Alternatively, stirring may be performed with an electrically powered mixing device which has a motor-driven impeller that is inserted in the container for mixing purposes.

[0002] Conventionally, commercially used containers for such liquids are typically made in one or two standard sizes. Mixing the liquid contents of such containers may be necessary because, for example, the contents may have separated into two or more of their constituent ingredients. In some instances, separate ingredients, such as adding pigments or coloring materials might be added to the container. That requires mixing the contents before application.

[0003] In order to mix the contents of the container, the container is placed upon a surface, such as the ground or a suitable floor surface, and held

manually while mixing the contents until they are sufficiently mixed for the application purposes.

[0004] However, a problem encountered in this conventional procedure, is that the mixing step normally causes a circular movement of the liquid, which is induced by the mixing device. That produces forces which cause the container to rotate or to otherwise move. This rotational movement or other movements while limited, nevertheless, interferes with the mixing and also may cause spilling or splashing of the contents during the mixing procedure. Moreover, at times such containers are inadvertently tipped over and their contents spilled out, during their use. Thus, it is desirable to clamp the container against any movement during the mixing procedure and during use, to prevent rotational or other movement. Further, it is desirable to hold the container against tipping over during times when the container is positioned for application of its contents, as well as during transit of the container.

[0005] In addition, it is desirable during the mixing operation, whether performed manually with a stirrer or mechanically with a power-driven impeller, to position the person who is operating a mechanical mixer above the open container for more conveniently holding and positioning the mixer within the container.

[0006] This invention contemplates providing a retainer which enables the user to clamp the liquid-containing bucket against rotation or other motion during mixing while simultaneously freeing the user's hands for holding the mixing device.

SUMMARY OF THE INVENTION

[0007] The invention herein contemplates providing a simple, very inexpensive, retainer which holds a container, such as a standard bucket or can containing, for example, liquid paint or other similar materials, against rotational or other movement during mixing of the contents of the container. The retainer frictionally and temporarily grasps the container while the retainer is clamped by the feet of the user against a support surface. This frees the user's hands so that the user may manually stir or hold a power driven stirrer within the container for conducting the mixing.

[0008] The retainer contemplated herein comprises a generally cylindrically-shaped, ring-like, socket into which a pail or can or bucket, can be inserted. By tapering or angling the interior wall surface of the ring-like socket with a Morse-like taper and/or by forming the interior wall of the ring of a resilient material, the socket ring applies a compressive, radially inwardly-directed force against the container to temporarily, tightly hold it within the socket.

[0009] The socket has laterally extending wings upon which the user may stand so that the body weight of the user clamps the retainer downwardly against the supporting ground or floor. Hence, the feet and weight of the user hold the socket, and consequently the container, against movement while freeing the hands of the user to manipulate either a manual stirrer or to position and hold a mechanical or electrically-operated stirrer for mixing. Although the container is rigidly held within the socket, it can be easily pulled upwardly out of the socket when the mixing is completed.

[0010] An object of this invention is to provide a simple, easily used, retainer for immobilizing the container against movement while positioning the user above the container and freeing the user's hands for manipulating the stirring device.

[0011] Another object of this invention is to provide a retainer which has no moving parts and which is easily transported, stored and kept available for immediate use when desired. Also, the retainer can be very easily cleaned of paint or other such materials. Having no moving parts and no separate locking mechanisms, the retainer can be almost instantly operated by being placed upon a floor or ground surface so that the user may step upon the extending wings to clamp the retainer against the support. Then the user may lift the container and insert it downwardly into the retainer ring. Thereafter the user may stir the contents manually or by inserting an electrical or mechanical mixing impeller in the container.

[0012] Still another object of this invention is to provide a retainer for holding containers while mixing their contents, such as paint and other liquid materials, which retainer is so inexpensive to manufacture that it can be either freely given away along with the purchase of the contents or it can be provided to tradesmen at extremely low costs and can be discarded after use in the event of damage or contamination.

[0013] These and other objects and advantages of this invention will become apparent upon reading the following description, of which the attached drawings form a part.

DESCRIPTION OF THE DRAWINGS

[0014] **Fig. 1** illustrates the retainer in perspective.

[0015] **Fig. 2** is a top, plan view of the retainer.

[0016] **Fig. 3** is a front elevational view of the retainer.

[0017] **Fig. 4** is a bottom, plan view of the retainer taken in the direction of arrows 4-4 of **Fig. 3**.

[0018] **Fig. 5** is an enlarged, cross-sectional view of the retainer taken in the direction of arrows 5-5 of **Fig. 2**.

[0019] **Fig. 6** is a cross-sectional view illustrating the insertion of a bucket, such as used for containing paint, in the retainer. The feet of the user are schematically illustrated as positioned upon the laterally-extending wings of the retainer. An electrically-operated impeller-type mixer is positioned in the bucket.

[0020] **Fig. 7** illustrates, in cross-section, a modified retainer having two different diameter, coaxial socket portions for insertion of two different size buckets or cans.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Referring to the drawings, the retainer, generally designated **10**, is formed with a socket portion **11** and laterally extending wings **12**. The socket portion is formed of a vertically axised ring **15** which, in preferred embodiment, is comprised of an inner wall **16** and an outer wall **17**. The walls are thin and are joined along their upper edges **18**. Preferably, the entire retainer structure, including the walls and wings, is formed of a one-piece molded, slightly resilient plastic material. Thus, the thin inner wall, along with the hinge-like integral connection between the walls permit a limited resilient contraction and expansion for holding or inserting and removing a container within the ring. The particular plastic utilized may vary, depending upon availability, cost, moldability, etc. Such selection can be made by one skilled in the art based upon the availability of commercially suitable plastics for this purpose.

[0022] The inner wall **16** is provided at its lower edge with an inwardly extending flange **19** (see **Figs. 5** and **6**). Also, a cross-brace **20** may be provided to stabilize and reinforce the ring shape of the inner wall.

[0023] The outer wall **17** is provided with the laterally outwardly extending wings **12**. The shape of the wings, which is illustrated in **Fig. 2**, generally consists of flat upper surface projections upon which the user's feet may be placed during mixing operations. However, although a pair of outwardly extending wings is preferred, it is contemplated that a single wing might be used or, alternatively, the wing may be a flat, continuous, laterally extending projection

encircling all or part of the socket so that the user may position his or her feet anywhere around the periphery of the socket.

[0024] The wings **12**, or if only one continuous or discontinuous wing is utilized, preferably has a downwardly-extending edge flange **25** integral with its outer periphery. The wing or wings may also be provided with downwardly extending protuberances or ribs **26**. The ribs tend to frictionally grip against ground surfaces, such as the dirt-like surfaces of the ground surrounding a house which is being painted. Similarly, the edge flange **25** may also serve to grip against a support surface, as well as reinforce and stiffen the wings.

[0025] The inner wall **16**, as described above, is preferably formed with its inner surface arranged at a Morse-type taper. "Morse" tapers are used in machinery for temporarily holding a shaft or the like within a collet or clamp. In this case, the Morse-type taper engages a circular can or bucket to temporarily lock the bucket or container within the socket by simply inserting the can or container downwardly into the socket to the point where the periphery of the container engages and is locked against the inner surface of the wall. The slight resiliency of the wall assists in locking the container to the wall by yielding slightly as the can is inserted and then forming compressive, radially inwardly-directed forces against the surface of the container. Removal of the container from the socket is simply a matter of lifting it upwardly with sufficient manual force to pull the container from the socket. The removal step may be facilitated by gently moving the container from side to side to break loose the lock formed by the taper. That allows the container to be easily lifted up from the socket.

[0026] Although the angle "A" (see **Fig. 5**) of the taper or slope of the inner surface of the inner wall may vary, depending upon the particular size of the container relative to the size of the socket, a typical "Morse" taper of about 2 degrees on the inner wall surface is preferable. This taper provides a slope angle of about 4 degrees when the opposite diametrically located portions of the circular ring are considered. This approximate slope should accommodate a conventional five-gallon paint bucket or can having a standard outside diameter of approximately 10-7/8 inches.

[0027] In operation, a bucket or pail or can, such as a standard 10-7/8 inch diameter can **30**, is inserted downwardly into the socket until it frictionally locks within the socket. The terms "bucket," "pail" and "can" are used interchangeably herein to refer to a conventional container such as is used for paint or other similar liquids.

[0028] As illustrated in **Fig. 6**, an electrical mixer **31**, having a mixing impeller **32** which is attached to a shaft **33** driven by a motor **34**, can be positioned over and inserted into the liquid contents of the bucket. The user may manually grip the handle **35** on the mixing device **31** to hold the mixer. At the same time, the user can position his or her feet **36** upon the wings on opposite sides of the socket. That will automatically position the user's body over the upper end of the bucket and position the mixer downwardly into the bucket.

[0029] The user may use a conventional electrically-operated mixer or may simply reach down into the bucket with a suitable wand or stick or brush to

stir the contents of the bucket. In either case, the user's body is positioned over the can at a convenient location for the mixing purpose.

[0030] Because there may be buckets or cans of a slightly different standard diameter, such as a 10-1/4 inch diameter or the like, the interior wall of the retainer may be varied accordingly. In addition, the wall may be modified, as illustrated in **Fig. 7**, to secure more than one size container. The modified retainer **40**, in the illustration, is provided with two co-axial sockets, namely, an upper socket **41** for the larger, such as 10-7/8 inch diameter standard cans, and a lower socket **42** which may be sized for a smaller conventional sized can such as 10-1/4 or 10-1/8 inch diameter.

[0031] **Fig. 7** schematically illustrates a larger bucket **30**, shown in dotted lines, positioned within the upper socket and a smaller diameter bucket **45**, shown in dotted lines, arranged within the lower socket **42**.

[0032] Additional sockets may be provided within the retainer ring by providing more, different diameter, socket portions, one above the other. Each socket may be slightly smaller in diameter than the socket above it.

[0033] While the foregoing description illustrates a preferred embodiment of this invention, this invention may be further developed within the scope of the following claims. Accordingly, having fully described an operative embodiment of my invention, I now claim: